

Dec. 18, 1923.

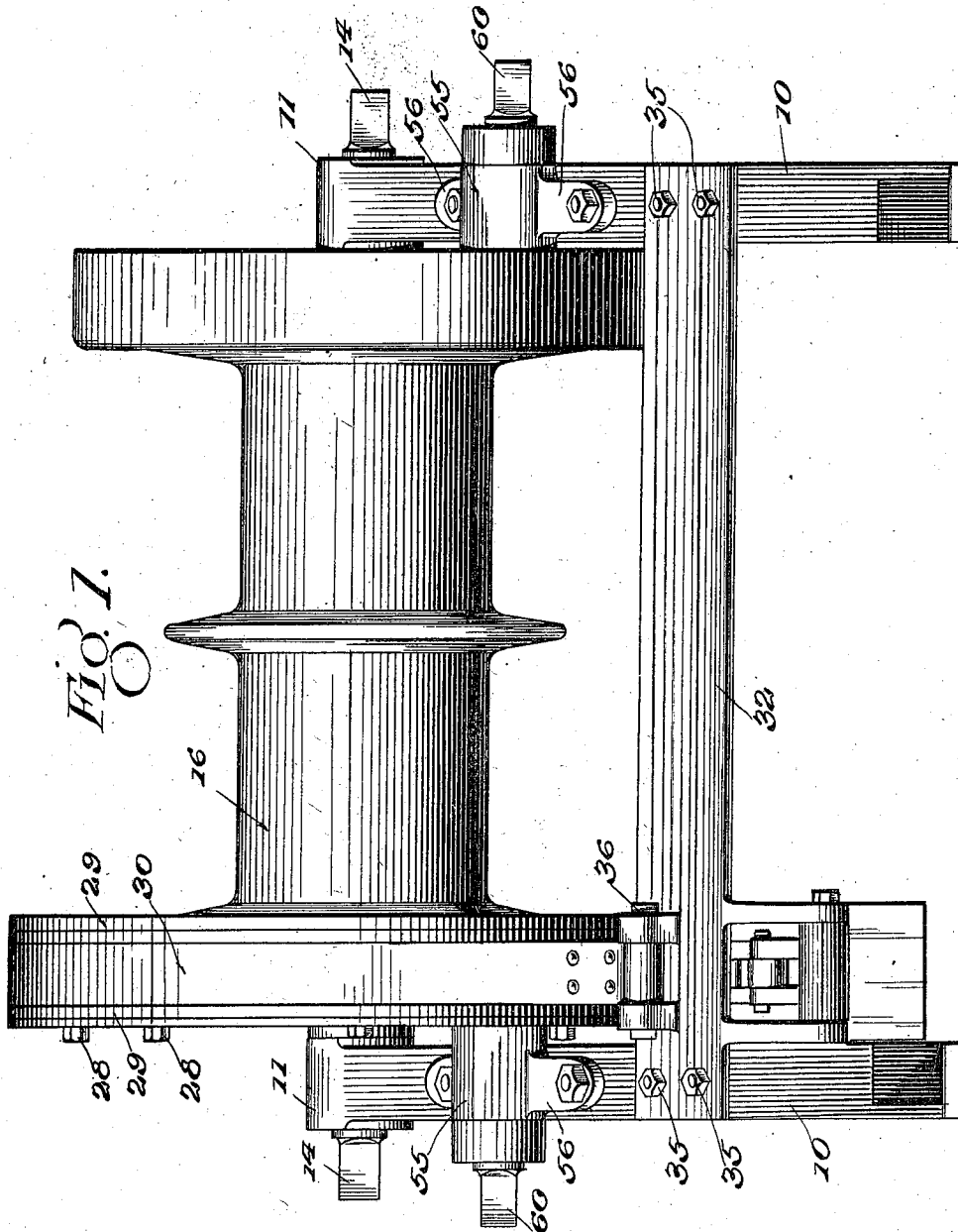
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S. E. ALLBIN

LOWERING AND RAISING DRUM FOR LIFEBOATS

Filed Dec. 31, 1921

4 Sheets-Sheet 1



WITNESSES

W. E. Allen

INVENTOR

Sim Emil Allbin.

BY *Wm. H. Co.*

ATTORNEYS

Dec. 18, 1923.

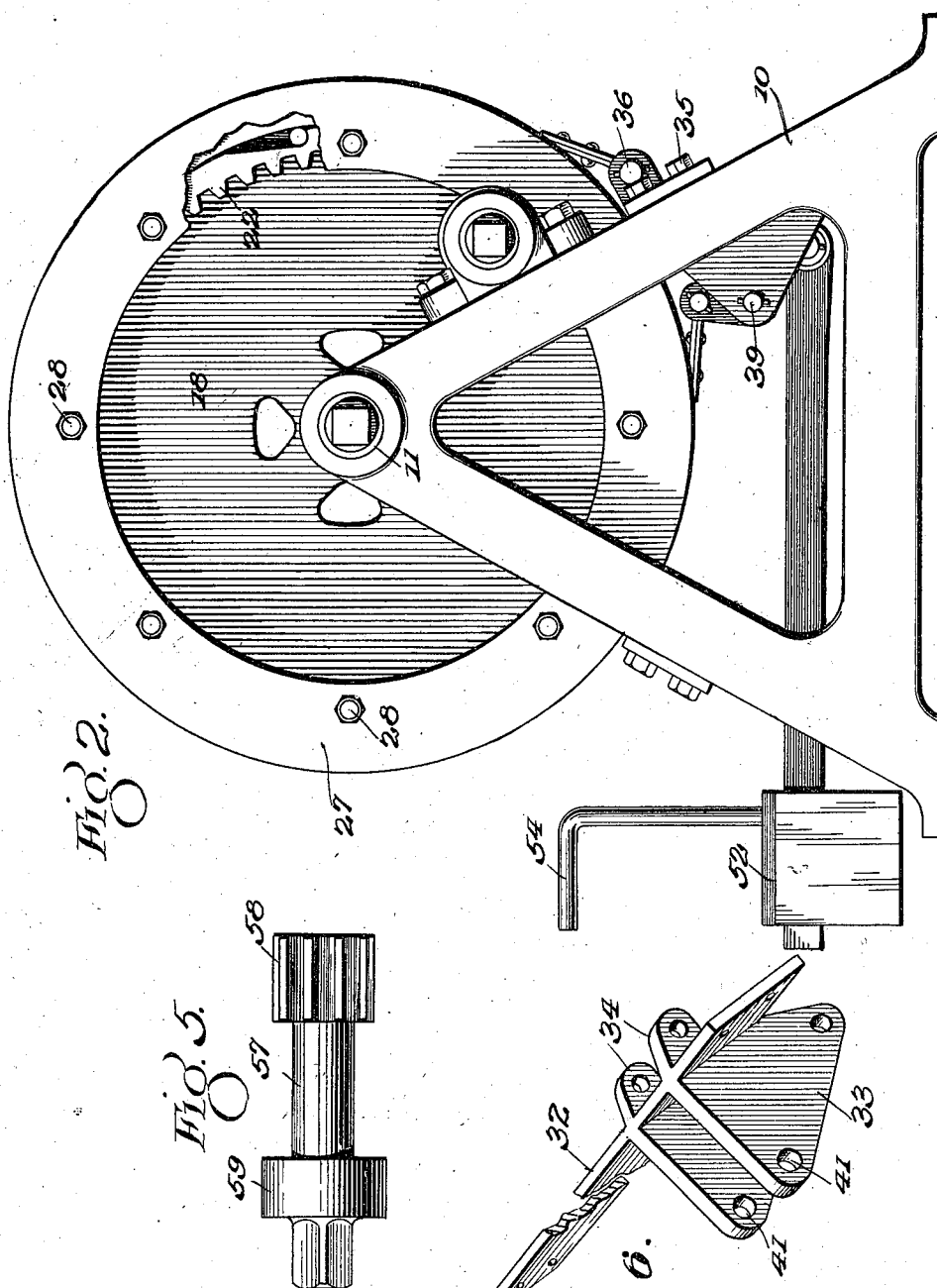
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WITNESSES
James W. [Signature]

FIG. 6.

INVENTOR
Sim Emil Allbin.
BY *Mum [Signature]*
ATTORNEYS

Dec. 18, 1923.

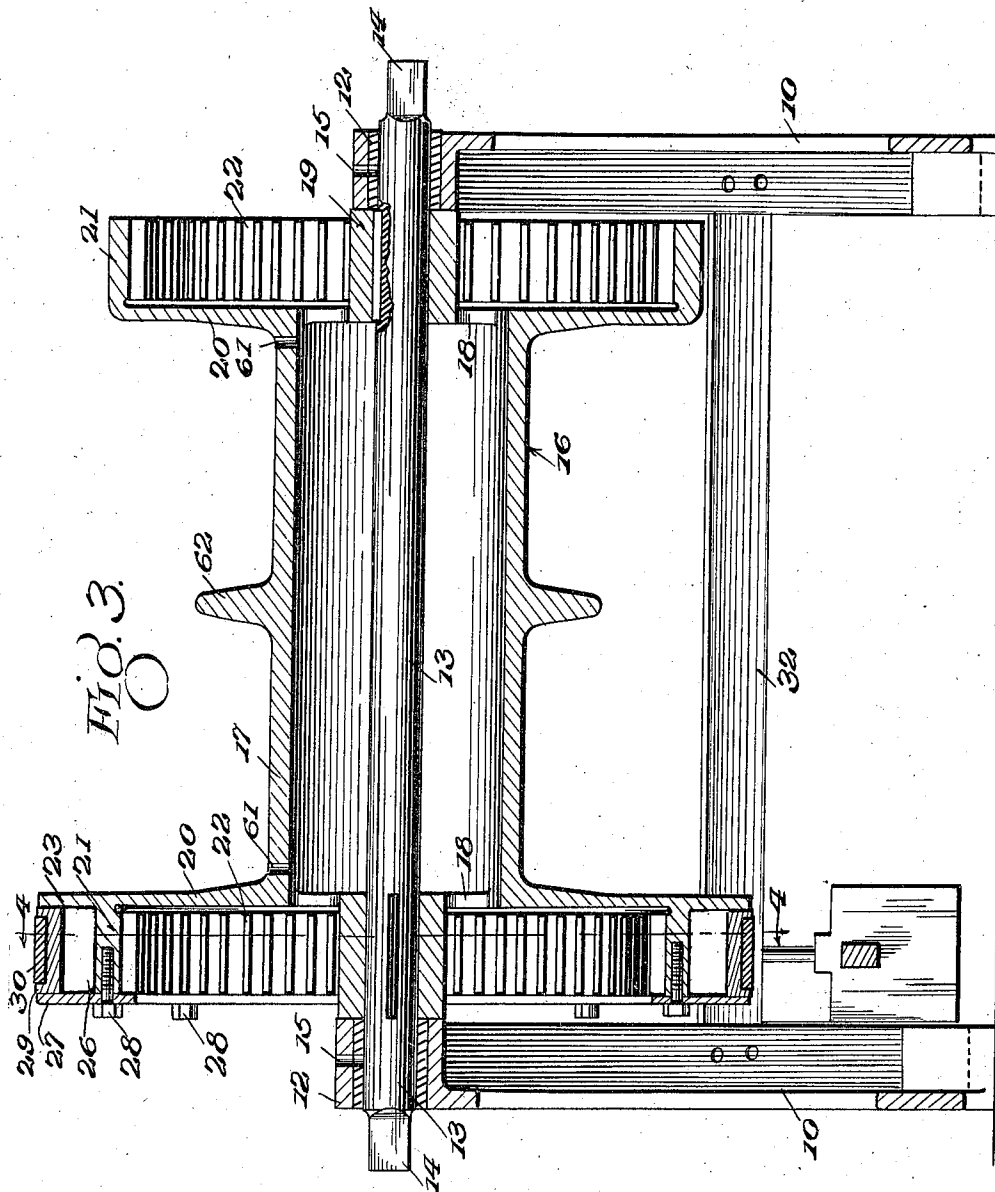
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WITNESSES

W. J. Merwin Jr.

INVENTOR

Sim Emil Allbin.

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BY *Mum Ho*

ATTORNEYS

Dec. 18, 1923.

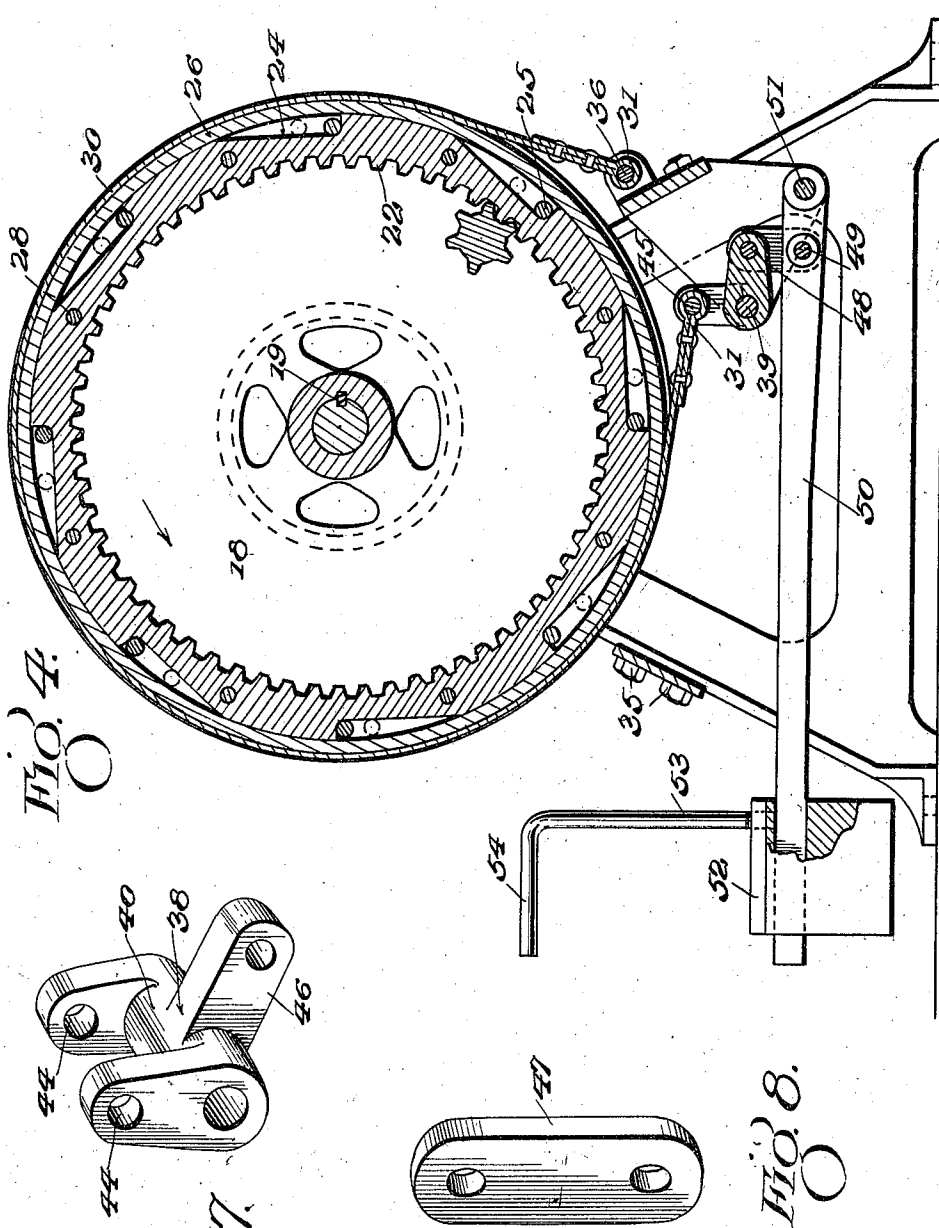
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WITNESSES
W. E. M. M. M.

FIG. 7.

INVENTOR
Sim Emil Allbin.
BY *M. M. M.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

SIM EMIL ALLBIN, OF SEATTLE, WASHINGTON, ASSIGNOR TO MAYER LIFE BOAT CO.
INC., OF SEATTLE, WASHINGTON.

LOWERING AND RAISING DRUM FOR LIFEBOATS.

Application filed December 31, 1921. Serial No. 526,147.

To all whom it may concern:

Be it known that I, SIM EMIL ALLBIN, a citizen of the United States, and a resident of Seattle, in the county of King, and State of Washington, have invented certain new and useful Improvements in Lowering and Raising Drums for Life Boats, of which the following is a specification.

This invention relates to a lowering and raising drum for life boats.

As is well known life boats are usually swung from a vessel by a davit boom and then lowered upon the water through the means of a block and fall. Usually a davit boom is employed at each end of the boat and a block and fall is associated with each boom for suspending a boat therebetween. The free end of the rope associated with each block and fall is of course used for lowering and raising the boat from the water.

It is the object of the present invention to provide a drum with suitable controlling means therefor to which the free end of a pair of block and falls may be attached for simultaneous winding or unwinding and thus raising or lowering a boat carried by the pair of block and falls.

It is also an object of the invention that the controlling means for the drum be dependable in operation and easy to control.

It is a further object of the invention that the controlling means for the drum be adapted to be operated by one person in either raising or lowering a life boat.

Other objects and objects relating to details of construction, combination and arrangement of parts will hereinafter appear in the detailed description to follow.

The invention is illustrated by way of example in the accompanying drawings, in which:—

Figure 1 is a perspective view of the drum,

Figure 2 is an end elevation of the same,

Figure 3 is a longitudinal vertical sectional view of the same,

Figure 4 is a vertical sectional view taken substantially on the line 4—4 of Figure 3,

Figure 5 is a perspective view of one of the driving pinions and its shaft,

Figure 6 is a detailed perspective view of the brake band connector,

Figure 7 is an enlarged detail perspective

view of the bell crank lever associated with the brake band, and

Figure 8 is a similar view of a link connecting the bell crank to the weight lever.

Referring to the drawings more particularly, 10 indicates generally a pair of bearing supports each of which is triangular in cross section and having a bearing at its apex as at 11, the interior of which is lined with a brass sleeve 12, and adapted to receive and journal an end of the shaft 13. The shaft 13 is squared at each of its ends as at 14 for receiving a crank, not shown. Also each of the bearings 12 is provided with an oil opening 15 by which the shafts may be lubricated. Upon the shaft 13 there is supported the drum generally indicated by the reference numeral 16, said drum comprising the cylindrical portion 17 which is hollow, as shown, and each of its ends closed as at 18 and said ends being each formed with a hub portion 19 adapted for receiving the shaft 13. Also the drum is keyed to the shaft 13 by the means of the key indicated at 19, Figure 4. Each end of the cylindrical portion 17 of the drum terminates in a flange 20 which is disposed at substantially right angles to the same, and said flanges in turn each terminating in an annular extension 21 which is formed with the gear teeth 22, and thus forming upon each end of the drum what may be termed an internal ring gear, the purpose of which will later appear in the description to follow.

One of the flanges 20 of the drum is extended beyond its annular extension 21 as at 23; also the annular extension 21 of the flange 20 has its outer periphery formed with a plurality of notches or recesses 24 which are substantially triangular in shape and each having disposed therein a roller preferably of steel or other hard metal as at 25. This annular extension 21 is also encompassed by a band 26 which is adapted to have free movement about the annular extension 21. To the outer edge of the annular extension 21 there is secured an annular plate member 27 by the means of the bolts 28. The band 26 has formed upon its outer periphery spaced ribs 29 between which there is disposed a brake band 30. The brake band 30 is preferably made of flexible material and each of its ends are

bent upon themselves to form a sleeve 31. The brake band connector as shown in detail in Figure 6 comprises the elongated plate portion 32 which is formed adjacent its one end upon the bottom surface thereof with a pair of wings 33, said wings being substantially triangular in shape as shown. Upon the upper side of the plate 32 there is formed a pair of lugs 34 which are in alignment with the wings 33. The plate 32 is secured to the bearing supports by the means of bolts as indicated at 35 at each of its ends, and the one end of the brake band 30 is journaled between the pair of lugs 34 by the means of a pin 36, Figures 1 and 4, said pin passing through the sleeve 31 carried by the end of the brake 30 with which the same is associated.

As shown in the drawings, the plate 32 of the brake band connection is inclined and between the uppermost corners of the pair of wings 33 there is fulcrumed the bell crank lever 38, said bell crank being fulcrumed by the means of a pin 39 passing through the opening in the hub portion 40 of the bell crank lever and having its ends disposed in the openings 41 of the wings 33. A pair of legs 44 of the bell crank lever 38 are pivotally connected by the means of a suitable pin 45 with the sleeve 31 formed upon the associated end of brake band 30, and the arm 46 of the bell crank lever 38 is pivotally connected to the one end of a link 47 by the means of a pin 48. The other end of the link 47 is pivoted as at 49 to a bar 50, the inner end of said bar being disposed between the lower ends of the wings 33 and pivoted therebetween by a suitable pin 51. The bar 50 is adapted for vertical movement and carries upon its outer end a weight 52, said weight having associated therewith a screw rod 53 having a handle 54 by which the same may be rotated for adjusting the weight 52 upon the bar 50.

Upon one side of each bearing support 10 there is positioned a drum casting 55, said drum casting in each instance having formed therewith a pair of ears 56 by which the same may be secured to the bearing support 10 through the means of the bolts 57. The drum casting 55, in each instance, is adapted to receive and journal the central portion 57 of a pinion shaft shown in Figure 5. The inner end of the pinion shaft has formed therewith a pinion 58 which is disposed and adapted to mesh, in each instance, with the teeth 22 formed upon the inner periphery of the annular drum extensions 21. Also each pinion shaft is formed with an enlargement 59 which is adapted to abut the casting 55 and hold the shaft against inner movement. The outer end of each shaft terminates in a squared portion 60 upon which a crank may be positioned for rotating the same.

The cylindrical portion 17 of the drum 16 has formed adjacent each end an opening 61 through which the free end of a block and fall may be extended and secured against slipping therethrough. Also the cylindrical portion 17 of the drum is formed with a central annular flange or rib 62 which is adapted to form a division wall so that a cable or rope may be wound upon each side thereof without interference.

Assume that the free ends of the ropes or cables of a pair of block and falls are extended through the openings 61 of the drum 16 and secured against disengagement from the drum and that it is desired to wind these ropes or cables upon the drum for lifting a life boat suspended between the pair of block and falls. As is obvious as the drum is rotated in the direction of the arrow shown in Figure 4, the rollers 25 will be disposed in the deepest end of the notches 24 and permit the free rotation of the drum with respect to the annular member 26. When rotating the drum a crank is placed upon the square end 60 of one of the pinion shafts and the pinion shaft rotated in the proper direction. As is obvious with the ratio existing between the pinions 58 and the internal ring gears formed upon each end of the drum an exceedingly great lifting power of the drum may be produced without great difficulty on the part of the operator, in other words, one man would be able to lift the life boat without any difficulty.

Also, as is obvious the friction rollers 25 will engage with the band 26 whenever the drum is rotated in a clockwise direction, or opposite to the direction of the arrow shown in Figure 4. The band 26 is of course yieldingly held by the means of the brake band 30, said brake band being operated by the weight 52 and thus a boat when held suspended would not be permitted to descend, that is, the drum 16 cannot unwind without the controlling means therefor being properly operated. In case it is desired to permit the boat to descend then the weight 52 may be lifted thus relieving the tension of the brake band 30, which in turn will permit a gradual descent of the boat, or in other words, permit the slow turning movement of the drum 16. This rotative movement of the drum may of course be regulated by the position of the weight 52. The lowering of a boat may be accomplished by one person and with safety.

It may be here mentioned that the purpose of forming the crank receiving portions 14 upon each end of the shaft 13 is that the drum may be rotated, in case that it is desired to wind in the ropes or cables of the block and falls connected thereto for inspection or a like purpose.

While I have shown and described the

preferred form of my invention I wish it to be understood that I am aware of the fact that the construction, combination and arrangement of parts may be changed by those skilled in the art without departing from the spirit of the invention as indicated by the appended claims.

I claim:—

1. A hoisting mechanism, comprising a drum, means for rotatably supporting the drum, an annular flange formed with said drum terminating in an internal ring gear concentric to the drum, and the outer surface of said ring gear being formed with a plurality of circumferentially spaced notches, an annulus fitted about the ring gear, a roller in each of said notches adapted to permit the ring gear to rotate in one direction with relation to the annulus but to lock the ring gear against rotation in the opposite direction with relation to the annulus, an adjustable friction band about said annulus, a spindle rotatably supported and carrying a pinion in constant mesh with said ring gear, and said spindle being adapted to be manually rotated to move said ring gear in either direction.

2. A hoisting mechanism, comprising a drum, means for rotatably supporting the drum, an annular flange formed upon said drum, an internal ring gear formed upon a face of said flange adjacent the outer periphery thereof, said ring gear having its outer periphery formed with a plurality of transversely extending notches, a roller in each of said notches, an annulus fitted about said ring gear and abutting the flange upon said drum and said rollers being adapted to permit the ring gear to rotate with respect to the annulus in one direction but to lock the same in the opposite direction, a removable retaining flange carried by the ring gear and adapted to engage the outer side of the annulus whereby to hold the same against displacement upon said ring gear, an adjustable friction band positioned about said annulus, a pinion supported by the supporting frame for said drum and in constant mesh with the said internal ring gear, and means whereby said pinion may be utilized for manually rotating said drum in either direction.

SIM EMIL ALLBIN.